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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/059,185	01/31/2002	Noritaka Kawakatsu	219061US2SRD	5367
22850	7590	11/04/2003	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			ROSSOSHEK, YELENA	
			ART UNIT	PAPER NUMBER
			2825	

DATE MAILED: 11/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

10/059,185

Applicant(s)

KAWAKATSU, NORITAKA

Examiner

Helen B Rossoshek

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5,9,12,15-17,21,25,28,31 and 32 is/are rejected.
- 7) ☒ Claim(s) 2-4,6-8,10,11,13,14,18-20,22-24,26,27,29 and 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is in response to the application 10/059,185 filed 01/31/2002 and amendment filed 08/21/2003.

2. Claims 1-32 remain pending in the application.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 5, 9, 12, 15-17, 21, 25, 28, 31 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Kay (US Patent 6,021,266).

As to claims 1, 5, 9, 12, 17, 21, 25 and 28 Kay teaches converting a first code described in a software description language to a second code described in a hardware description language, including: converting the first code to the second code (col. 4, ll.33-37); detecting a plurality of processes from the second code, the processes corresponding to a plurality of parallel procedures in the first code, which assign values to a predetermined shared variable as shown on the fig. 1 within a compiler wherein in step 3 the source code having a plurality of parallel procedures (parallel constructs) (col. 5, ll.24-26, ll.61-62) is checked, and a abstract syntax tree and symbol table are created (step 4, step 5) which is an input for generator module (11) to convert the first code to the second code determining plurality processes (constructs) in the second code matching plurality of parallel procedures in the first code (col. 6, ll.31-35) and wherein

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the simplifier module 6 assigns variable for the first code (col. 5, ll.44-48) and optimizer 10 verifies this variables in the second code (col. 6, ll.14-16); and generating a value solving process for the detected processes corresponding to the parallel procedures, wherein the value solving process includes pairs of a data signal and a assignment timing signal from each of the detected processes as an input, and includes any one of data signals corresponding to a change of the assignment timing signal, as an input as shown on the Fig. 4a within declaration of a signal $R_{request}$ as input and calculating R_{value} as output and declaring a signal R_{ready} for validation (col. 13, ll.15-27) and the Fig. 4B for multiple constructs (processes) within putting a combinational adder 35.

As to claims 15, 16, 31 and 32 Kay teaches the specifics as applied to claims 1, 5, 17 and 21 and was noted above and converting the value solving process relating to a procedure call between parallel programs to a procedure call solving process wherein the procedure call solving process includes pairs of an call timing signal and an argument data signal from each of the detected processes, as an input, and includes terminal signal and a return value signal, as an output to the processes, from the called procedure as shown on the Fig. 5A, 5B and 5C by calling the process F-39 and returning the value R_{ready} as output signal value; and returning the signal rx_{ready} for the particular channel (col. 13, ll.53-67, col. 14, ll.1-8).

Allowable Subject Matter

5. Claims 2-4, 6-8, 10, 11, 13, 14, 18-20, 22-24, 26, 27, 29 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening

claims. The prior art of record does not teach connecting the generated first and second value solving processes each other, wherein the first value solving process of the second code is generated at higher level and a second value solving process of the second code is generated at lower level than the first value solving process and second code includes a component hierarchical structure.

Remarks

6. As to claims 1, 5, 9, 12, 15-17, 21, 25, 28, 31 and 32 Kay teaches detecting from the second code a plurality of processes that correspond to a plurality of parallel procedures in the first code within the symbol table (5) shown on the Fig. 1 the creation of which is based on the source code (1) (first code) which keeps track of names and objects declared in the source code (first code) (col. 5, ll.30-35), wherein the symbol table is used for creation of the second code (HDL) (col. 6, ll.32-35), and also the handshaking mechanism for making sure that the data (moved common operations) cannot be lost in transit from first code to second code (col. 5, ll.54-57); identifying which ones of the plurality of processes assign values to an identical shared variable within the module (6) shown on the Fig. 1 which removes unsupported constructs and replaces them with equivalent constructs supported by the HDL generator module (11) during the process of going from first code to second code which has been done as a combination of a simplified abstract syntax (7) and a symbol table (5) and shown on the example 3 as the fragment of the programming process (col. 11, ll.25-35):

One possible standard optimization is to remove calculations from loops if they do not need to be repeated. For example:

While ($x < 10$)

$x := x + 1$ ($y * y$)

could be rewritten as . . .

declare tmp

tmp: -y y

While ($x < 10$)

$x := x + \text{tmp}$

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen B Rossoshek whose telephone number is 703-305-3827. The examiner can normally be reached on 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S Smith can be reached on 703-308-1323. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

HR



LEIGH M. GARBOWSKI
PRIMARY EXAMINER